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Caregivers' Perception of the IPad's Utility for Augmentative and Alternative Communication (AAC): A Conflict between Illusion and Reality

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Abstract

The primary purpose of this study was to compare perceptions of the iPad's utility for augmentative and alternative communication (AAC) in individuals with autism spectrum disorder (ASD). A sample of 15 caregivers, eight of whom cared for individuals who had iPads ("users") and seven of whom cared for individuals who did not have iPads ("non-users"), responded to a survey created by the authors to identify possible helpfulness of the iPad's for enhancing communication. Non-users' perceptions of the potential utility of the iPad were statistically significantly greater than those of the caregivers who had utilized the iPad for AAC. These findings strongly suggest a conflict between the non-users' illusions and the users' subjective reality regarding the iPad's potential to improve communication skills.

Keywords

Augmentative and Alternative Communication (AAC), Autism Spectrum Disorder (ASD), iPad

1. Introduction

The iPad is a potentially useful augmentative and alternative communication (AAC) tool for individuals with autism spectrum disorder (ASD) (McNaughton & Light, 2013); it has even been described as a "miracle" for this population (Rosa, 2013). Consequently, it is not surprising there are misconceptions concerning the iPad's utility for enhancing communication skills, leading many parents as well as clinicians to implement it as an AAC device without sufficient evidence of its efficacy (Cardon, Wilcox, & Campbell, 2011; Peluso, 2012). Although researchers are investigating this assistive technology for individuals with ASD (Neely et al., 2012; Ramdoss et al., 2011), there is a paucity of research on the caregivers perceptions of the iPad's ability to enhance communication skills (Allen & Shane, 2014). The primary purpose of this study was to compare non-users' perceptions of the

potential utility of the iPad to improve communication skills to the perceptions of those caregivers who had, in fact, utilized the iPad for AAC.

2. Method

2.1 Participants

A sample of 15 caregivers, eight of whom cared for individuals who had iPads ("users") and seven of whom cared for individuals who did not have iPads ("non-users"), responded to a survey created by the authors identifying the following iPad's potentials to enhance AAC, (a) using the appropriate app, (b) the ease for the caregiver and person with ASD to use, (c) if the caregiver were appropriately trained, (d) the iPad was accurately programmed, and (e) the iPad would be no help in enhancing AAC. These potentials were scored on a binary scale of yes/no as being beneficial. Additionally, there was one general question rated on a 7-point Likert-type scale with higher scores indicating greater endorsement of the statement "*that the iPad will improve the communication skills of the person with ASD*".

2.1.1 Statistical Analysis

An independent samples t-test was conducted to assess differences between the ratings of users and non-users on the general question that the iPad will improve AAC. A 2 X 5 mixed within/between subjects ANOVA was performed with group (users and non-users) as the between-subjects variable and the iPod's aforementioned potentials as the within-subjects variables.

3. Result

Non-users reported a statistically significantly greater score on the endorsement "*that the iPad will improve the communication skills of the ASD person*" than users, $t(13) = 3.27$, $p = .006$, Cohen's $d = 1.74$. Group size, mean, standard deviation, and standard error of the mean are presented in Table 1.

Table 1. Group Size, Means, Standard Deviations, and Standard Error of the Means

iPad	n	M	SD	SEM
Non-User	7	5.86	1.07	.40
User	8	3.25	1.83	.65

Additionally, non-users' perceptions on (a) using the appropriate app, (b) the ease for the caregiver and person with ASD to use, (c) if the caregiver were appropriately trained, (d) the iPad was accurately programmed, were significantly greater for non-users than the users' perception on these potentials. It is instructive to note that 20% of the users reported that the iPad did not help, while none of the non-users reported that the iPad could not help. The group means for the iPad's functions are presented in Figure 1 and the group means and standard deviations are resented in the Table 2.

Table 2. Group Means and Standard Deviations for IPad's Functions

	Users		Non-Users	
Function	M	SD	M	SD
Correct Apps	0%	.00	47%	.52
Easy Use	7%	.26	47%	.52
Trained	0%	.00	40%	.51
Programmed	20%	.41	40%	.51
Not Help	20%	.41	0%	.00

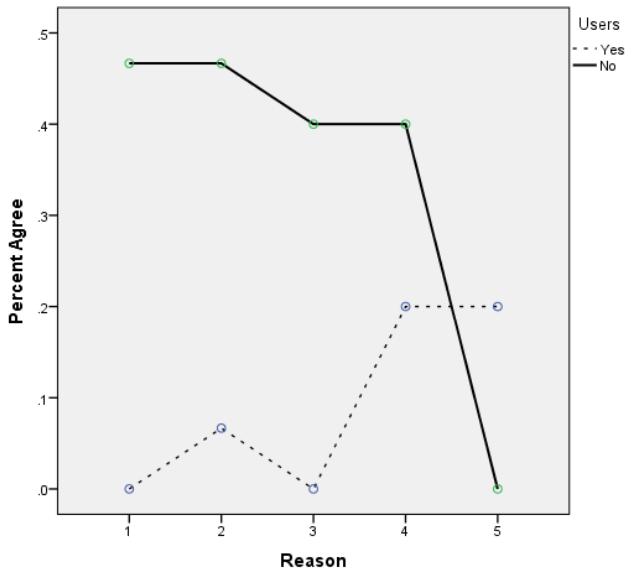

Figure 1. Mean Differences between Groups on: (1) Correct App, (2) Easy to Use for the Person, (3) Caregiver Well Trained, (4) Programmed Accurately, and (5) no Help to Person

4. Discussion

These findings strongly suggest a conflict between the non-users illusions and the users' subjective reality regarding the iPad's potential to improve augmentative and alternative communication (AAC) for individuals with autism spectrum disorder (ASD). Nonusers were significantly more optimistic than the caregiver's users. Although parents' treatment decisions are reportedly influenced by the media and peers (Bowker, 2010; Mackintosh, Myers, & Goin-Kochel, 2005), these reasons were not supported in this study. Media had zero reported influence for both the users and non-users on treatment decisions and only 7% of users and 33% of non-users claimed to be influenced by their peer group. The means and standard deviations for influencing iPad'suse for users and non-users are displayed in Table 3.

Table 3. Group Means and Standard Deviations for Influencing IPad's

	Users		Non-Users	
Influence	M	SD	M	SD
Professional	20%	.41	47%	.52
Peer	7%	.26	33%	.49
Media	0%	.00	0%	.00
Other	20%	.41	0%	.00

Almost 50% of non-users reported professionals influence them, yet the validity of the professionals' recommendations is questionable (Cardon, Wilcox, & Campbell, 2011). In other words, professionals are just as likely to be at risk of being overwhelmed by the volume of unsubstantiated claims and counter-claims on the iPad's efficacy as the non-professionals. The findings of this study underscore the significant challenges outlined by Light and McNaughton (2013) and McNaughton and Light (2013). The goal is not in the technology itself; rather, the goal is to integrate the technology in developing effective AAC systems.

References

Allen, A. A., & Shane, H. C. (2014). Autism spectrum disorders in the era of mobile technologies: Impact on caregivers. *Developmental Neurorehabilitation*, *17*(2), 110-114.

Bowker, A., D'Angelo, N. M., Hicks, R., & Wells, K. (2011). Treatments for autism: Parental choices and perceptions of change. *Journal of Autism and Developmental Disorders*, *41*(10), 1373-1382.

Cardon, T. A., Wilcox, M. J., & Campbell, P. H. (2011). Caregiver perspectives about assistive technology use with their young children with autism spectrum disorders. *Infants & Young Children*, *24*(2), 153-173.

Goin-Kochel, R. P., Mackintosh, V. H., & Myers, B. J. (2009). Parental reports on the efficacy of treatments and therapies for their children with autism spectrum disorders. *Research in Autism Spectrum Disorders*, *3*(2), 528-537.

Light, J., & McNaughton, D. (2013). Putting people first: Re-thinking the role of technology in augmentative and alternative communication intervention. *Augmentative and Alternative Communication*, *29*(4), 299-309.

Mackintosh, V. H., Myers, B. J., & GoinKochel, R. P. (2005). Sources of information and support used by parents of children with autism spectrum disorders. *Journal on Developmental Disabilities*, *12*(1), 41-52.

McNaughton, D., & Light, J. (2013). The iPad and mobile technology revolution: Benefits and challenges for individuals who require augmentative and alternative communication. *Augmentative and Alternative Communication*, *29*(2), 107-116.

Neely, L., Rispoli, M., Camargo, S., Davis, H., & Boles, M. (2013). The effect of instructional use of an iPad on challenging behavior and academic engagement for two students with autism. *Research in Autism Spectrum Disorders*, *7*(4), 509-516.

Peluso, D. C. C. (2012). The fast-paced iPad revolution: Can educators stay up to date and relevant about these ubiquitous devices? *British Journal of Educational Technology*, *43*(4), 125-127.

Ramdoss, S., Lang, R., Mulloy, A., Franco, J., O'Reilly, M., Didden, R., & Lancioni, G. (2011). Use of computer-based interventions to teach communication skills to children with autism spectrum disorders: A systematic review. *Journal of Behavioral Education*, *20*(1), 55-76.

Rosa, S. D. R. (2010). *The iPad: A near-miracle for my son with autism*. Blogher.com. Retrieved July 7, 2013, from http://www.blogher.com/ipad-nearmiracle-my-son-auti